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ABSTRACT

WISE is an on-line, interactive information retrieval system designed to operate on key-word-oriented data bases. The WISE user searches a data base by entering and combining key-words that are appropriate to the data base and the subject matter. The user also enters certain command statements to enhance the results of the search and to control the generation of output. This document deals with the user interface to the interactive program SEARCH which searches the data bases. It is assumed that the reader can initiate a 1110 computer run from an interactive terminal and can execute a password check. (CH)

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Information
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WISE
search program

Reference Manual
for the 1110

U.S. DEPARTMENT OF HEALTH
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ACADEMIC COMPUTING CENTER
THE UNIVERSITY OF WISCONSIN - MADISON

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Roy Tally, Tom Olson, Don McIsaac, Dennis Spuck.

PREFACE

It is assumed that the reader of this document knows how to initiate an 1110 computer run from an interactive terminal, and how to get at least as far as a successful password check. A description of how to do this is found in the MACC (Madison Academic Computing Center) Time-sharing Guide, Chapter 3, pp. 1-5.

This document is intended to be a general guide for using the WISE SEARCH program and therefore does not contain detailed information concerning any particular database. Details concerning the nature of particular databases must be sought from the individual database managers.

INTRODUCTION

WISE is an on-line interactive information retrieval system designed to operate on keyword oriented databases. The system was designed particularly with bibliographic databases in mind, but it is potentially useful for any keyword oriented database. The WISE user searches a database by entering and combining keywords that are appropriate to the database and the subject area of interest. The user also enters certain command statements to refine and enhance the results of the search, and to control the generation of output. In addition, certain features of WISE make it very convenient for the user to perform SDI (Selective Dissemination of Information) applications.

The WISE system as a whole consists of five absolute programs and two sets of subroutines for creating, updating, and searching a database. This document deals with the user interface to the interactive program which searches the databases. This program is called SEARCH.

1.0 Using SEARCH

There are two modes of operation available when using SEARCH:

1. ACTION mode (enter command statements, keywords, combine keywords, and search).
2. HELP mode (obtain information about how to use the system).

The expected inputs for each mode are listed below. The system starts in ACTION mode. The user can go from ACTION mode to HELP mode by entering the command statement,

/HELP

The user can return from HELP mode to ACTION mode by depressing the carriage return key on the computer terminal in place of a HELP command.

In ACTION mode one can enter:

1. keywords
2. special functions
3. boolean expressions (UNION, INTERSECT, BUTNOT)
4. command statements

The most frequently used inputs are keywords, Boolean expressions and the commands, /LIST, and perhaps /HELP.

The following is a complete list of the available commands:

/LIST
/L
/PRELIST
/LISTP
/COMMENT
/SAVE
/ADD
/RESTART
/ABSTRACT
/INFO
/HELP
/QUIT

The / must always precede the command in column 1. In the above commands, options are available which will limit or expand the functions of the command. These options are available for those who wish to use them.

When searching, the user simply enters keywords of the database. The system responds by printing a set number, and the number of citations which contain that keyword. Subsequent references to the set number refer to the set of all those citations which contain the specified keyword.

EXAMPLE 1: (User input is underlined)

```
NEW*WISE.SEARCH RIE  (This statement specifies that we wish to search
                      the Resources In Education database.)
 SEARCH VERSION 01.01 DATE: 121075  TIME: 084236
ACTION:
 :CHEMISTRY
SET 1 1047 CITATIONS
 :COMPUTERS
SET 2  401 CITATIONS
 :PHYSICS
SET 3  523 CITATIONS
```

The colon is used as a prompt character to solicit the next input from the user.

Keywords and Special Functions

The databases for which SEARCH is designed consist of large numbers of citations, each of which has a group of keywords associated with it. Citations also contain other fields, e.g., major emphasis of a term, source of the document, etc. which can be used for retrieval. Access to citations using these fields is accomplished through special functions.

To retrieve the citations for a given special function, the user enters a statement of the form:

```
:special function=keyword
```

The special function is an assigned name of 1 to 6 characters corresponding to the desired field. The system response is a set number followed by the number of citations.

EXAMPLE 2:

In the RIE and CIJE databases, one special function is MAJOR (for major term). If we want to isolate the set of all citations which contain the keyword, INSERVICE TEACHER EDUCATION used as a major term, we would input the following:

:MAJOR=INSERVICE TEACHER EDUCATION

Set 4 832 CITATIONS

:

SPECIAL NOTE:

This is the only SEARCH statement where extra spaces are not ignored by the program. The special function must immediately follow the prompt character, the equal sign (=) must immediately follow the special function, and the keyword must immediately follow the equal sign with no intervening blanks.

The individual database administrators choose which special functions will exist and what they will be called. This decision must be made before the initial creation of the database.

Boolean Expressions

Boolean expressions allow the user to combine sets in various ways to obtain new sets. For example, if a search had isolated sets 1 and 2, they could be combined in the following three ways:

A. 1 * 2 (INTERSECT) (LOGICAL AND)

The new set contains those citations found both in set 1 and set 2. (e.g., those citations that contain both the keywords CHEMISTRY and COMPUTERS).

B. 1 + 2 (UNION) (LOGICAL OR)

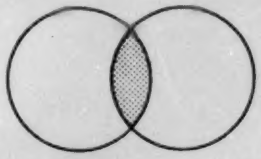
The new set contains those citations found in set 1 or set 2 (e.g., those citations that contain either the keyword CHEMISTRY or COMPUTERS).

C. 1 - 2 (BUT NOT)

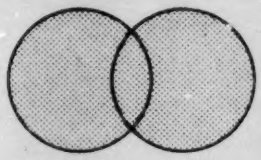
The new set contains those citations found in set 1 but not in set 2. (e.g., those citations that contain the keyword CHEMISTRY but not COMPUTERS).

The Venn diagram representations of these operations are shown below. The shaded areas represent the citations that are selected:

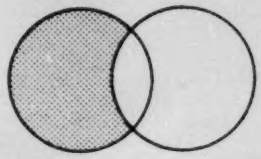
A. 1 * 2 (INTERSECT)



B. 1 + 2 (UNION)



C. 1 - 2 (BUT NOT)



EXAMPLE 3:

Here is a sample search which illustrates computer responses to selected keywords and a subsequent combination of the sets in Boolean expressions.

ACTION:

:EARLY READING

SET 1 98 CITATIONS

:BEGINNING READING

SET 2 580 CITATIONS

:READING READINESS

SET 3 398 CITATIONS

:EVALUATION

SET 4 2753 CITATIONS

:PROGRAM EVALUATION

SET 5 5916 CITATIONS

:EVALUATION CRITERIA

SET 6 1739 CITATIONS

:PRESCHOOL EVALUATION

SET 7 2317 CITATIONS

:[1 + 2 + 3] * [4 + 5 + 6 + 7]

SET 8 129 CITATIONS

:[1 + 2 + 3] * [4 + 5 + 6 + 7 + TEACHER EVALUATION + SUMMATIVE EVALUATION]

SET 9 182 CITATIONS

The above example illustrates the basic procedures used when searching with SEARCH to isolate sets of citations that satisfy certain criteria. The user first isolates sets corresponding to single keywords. He then combines sets in Boolean expressions that contain set numbers or the keywords themselves. Once a set has been created in a SEARCH session, it may be used in any subsequent Boolean expressions. The main reasons for the existence of set numbers are:

a. to facilitate the writing of Boolean expressions.
b. to be able to refer to intermediate results when constructing more complex Boolean expressions.

In writing Boolean expressions only the following are allowed:

a. set numbers
b. the five special symbols * + - [ ]
c. keywords that do not contain any of the five special symbols.
   (Note that a "keyword" may actually consist of several words, as illustrated above.)

SEARCH will handle such "keywords" up to 60 characters in length.

If a Boolean expression is too long to fit on one line, the user may input part of the expression on the first line, then type the continuation character ; (semicolon), and finally continue to input the rest of the expression on the next line.

Notes:

1) Anything following the semicolon on the same line will be treated as a comment and will not be processed by SEARCH.

2) A Boolean expression may have an unlimited number of continuation images.

Profile names (see description of the /SAVE command) should not be used in Boolean expressions because they will be interpreted as keywords. Use the /ADD command (see below) to obtain a set number for a search profile and use that set number in the Boolean expression.

Special functions should not be used in Boolean expressions because they will also be interpreted as keywords. Again, obtain a set number for a special function and use it in the expression.

Selective Dissemination of Information (SDI)

Selective Dissemination of Information is the process of regularly isolating and distributing information on specific topics.

The section on the /ADD command describes how SEARCH can be conveniently used as part of an SDI application.

2.0 Command Statements:

/LIST

The /LIST command is used to specify that a set or a certain part of a set should be listed. The full form of the /LIST command is:

/LIST n/i/xx-yy/k-h

where n = the set number of the set to be listed
i = the maximum number of citations to list, or the word:ALL
xx-yy means list only citations for articles that were published in the years xx through yy inclusive, (use the last 2 digits of the year).
k-h means list only citations in the range of citation numbers, k-h inclusive, where k is the low number and h is the high number.

The i, xx-yy, and k-h fields are all optional.

Citations will be listed with the highest citation first, and the lowest citation last. This tends to give the most recent information first.

If the i field is omitted, exactly 1 citation will be listed. If the i field contains the word, ALL, all the citations will be listed.

If a user has not already defined the listing parameters when a /LIST command is input, the system will ask:

DO YOU WANT TO DEFINE THE LISTING PARAMETERS?

Permissible responses are: YES, or Y, Any other response will mean NO. If the answer is YES or Y, the program will ask the following four listing parameter questions:

ADDITIONAL INFO? (answer YES,Y, or something else)
TERMINAL LISTING? (answer YES,Y, or something else)
PRINTER LISTING? (answer YES,Y, or something else)
WHICH PRINTER?

The last question should be answered with a printer name such as PR123.

If the answer to ADDITIONAL INFO? is not YES or Y only the citation numbers will be printed. If YES, additional information, usually title and author information will also be printed. The exact nature and format of the additional information is dependent on which database is in use.

If the answer to TERMINAL LISTING? is YES, a listing will be produced on the interactive terminal. Care should be taken to avoid producing long listings on slow terminals.

If the answer to PRINTER LISTING? is YES, a listing will be produced on the printer specified in response to the WHICH PRINTER? question.

If the answer to the initial ...LISTING PARAMETERS? question is something other than YES or Y, the system will use the default values:

YES (additional info)
YES (terminal listing)
NO (Printer listing)
(no printer specified)

EXAMPLE 4:

:/LIST 12/3

(The first 3 citations from set 12 will be listed.)

EXAMPLE 5:

:/LIST 12/ALL//70000 - 95000

(Only citations in the range 70000 - 95000 will be listed).

EXAMPLE 6:

:/LIST 12/ALL/73-74/70000 - 95000

(Only citations which were published in 1973-1974 and are in the range 70000 - 95000 will be printed.)

EXAMPLE 7:

:/LIST 12/ALL/75

(Only citations published in 1975 and after will be listed.)

EXAMPLE 7A:

:/LIST 12/ALL//100100

(Only citations 100100 and higher will be listed.)

/L

The /L command is a convenient extension of the /LIST command. Suppose we have just entered a complicated /LIST command for a set and we have printed the first few citations (10 for example). Now, suppose that we want to see the next 5 citations (under the same xx-yy and k-h restrictions) without having to print the first 10 again.

The command, /L 5, will do exactly what we wish. Now, suppose we want to see the next 12 after that. The command, /L 12, will do it.

The /L command is valid if and only if it is immediately preceded by a /LIST command or another /L command.

The full form of the /L command is:

/L i

where i = the maximum number of citations to list, or the word; ALL. If the i field is omitted, 1 is assumed. If i is the word ALL, all the remaining citations will be listed.

/PRELIST

The /PRELIST command is used to see how many citations will be listed if we restrict a set to a certain range of citation numbers and/or publication dates. This is useful to determine if there are too many citations to list on a terminal. The full form of the PRELIST command is:

/PRELIST n/xx-yy/k-h

n, xx-yy, and k-h have the same meanings as in the LIST command. The xx-yy and k-h fields are optional.

EXAMPLE 8:

:/PRELIST 12/73-74/70000 - 95000

29 CITATIONS TO LIST

:

/LISTP

By using the /LISTP command, the user may define or redefine the listing parameters at any time while in ACTION mode. The full form of the command is:

/LISTP x/x/x/y

where the x's may be YES, Y, or other. For readability it is suggested that others be NO or N.

y is a printer name, e.g., PR123

This command answers the four listing parameter questions. If the user omits the x and y specifications, the four listing parameter questions will be printed. (see /LIST).

/COMMENT

The /COMMENT command is essentially a do-nothing command. It allows a user to place personal comments into his search listing for later reference. The full form of the command is:

/COMMENT <any string of words up to 60 characters long>

/SAVE

This command is not yet implemented. When it becomes available, it will enable a searcher to save the description of any set which has been created during a search. The set description can then be automatically retrieved in a later search by use of the /ADD command (See below).

In the meantime, use of the @EDIT processor[1] will enable a searcher to save a Boolean expression (search profile) describing any set he desires. This search profile can then be automatically retrieved and processed in subsequent searches by the /ADD command.

How to SAVE a Profile:

1) The searcher must catalog (@CAT,P)[2] and save (@SAVE,S)[3] an EXEC-8 file in which to save the search profile. (There is a charge for cataloging a file, so don't do this unless you are willing to pay for it.)

2) The searcher can then use a statement of the form

   @EDIT,I QUALIFIER*FILENAME.PROFILENAME

   and use the text editor (@EDIT) to enter the image or images which constitute the profile. If the profile requires more than one image, the line continuation character ; (semicolon), must be used to indicate that the continuation images are all part of the same profile. The text of the profile may be preceded by 1 or more /COMMENT images. These /COMMENT images, along with the profile images, will all be displayed when the profile is retrieved by the /ADD command.

3) Profiles usually should not contain set numbers because set numbers change their meaning from one search to another and therefore are usually ambiguous in this context. Only very experienced searchers should attempt to use set numbers in their profiles.

   In general, profiles should contain only:

   a) keywords;
   b) the operators * + -
   c) right and left brackets [ ]
   d) semicolons when appropriate

4

4) QUALIFIER*FILENAME. conforms to the standard EXEC-8 filename conventions.

5) PROFILENAME may be any alphanumeric string 1-12 characters in length. It is probably wise to choose a name that has some mnemonic value.

6) Any number of <u>different</u> profiles may be kept in the <u>same</u> EXEC-8 file.

7) It is possible for groups of users with similar interests to form a library of useful profiles, and keep them all together in the same EXEC-8 file.

/ADD

The /ADD command allows the retrieval and processing of a previously saved search profile. The full form of the command is:

/ADD PROFILENAME/QUALIFIER*FILENAME.

PROFILENAME and QUALIFIER*FILENAME. are exactly the same as described in the /SAVE documentation.

When the /ADD command is used, the /COMMENT images and the profile images will be displayed on the terminal, the corresponding set will be computed, and a set number will be displayed. This set number is available for use until the next /RESTART command, or the end of the search.

SDI (Selective Dissemination of Information)

By saving search profiles, by retrieving them with /ADD, and by using the k field on the /LIST command, SDI applications become very simple to perform using SEARCH.

The method:

1) Save all the profiles in which you're interested in some EXEC-8 file.
2) Each time the database is updated, find out what the first new citation number is (let's symbolically call it k).
   N.B. the /INFO command is useful for determining k.
3) For each profile, input a pair of statements having the same form as those shown below.

```
:/ADD PROFILENAME/QUALIFIER*FILENAME.
                :
  SET  n          xxxx ENTRIES

:/LIST n/ALL//k
```

The results will be exactly those citations which fit your profile and have been added during the last database update.

/RESTART

The /RESTART command causes all sets to be deleted. The program is in approximately the same state as when it first started. The only difference is that the listing parameters retain their specifications. /RESTART is useful in at least two cases:

a. the user has gotten confused and wants a fresh start
b. the user wants to start a search on a new topic. Doing a /RESTART will cause set numbering to begin at 1 again. Also, /RESTART usually results in freeing internal work space for SEARCH which may lead to more efficient system operation.

EXAMPLE 14:

```
:/RESTART

  ARE YOU SURE?  YES (or Y; anything else means NO).

:
```

/ABSTRACT

The databases for which WISE is designed frequently contain far more information than can be maintained on-line for interactive use. For example, the ERIC (Educational Resources Information Center) databases contain the entire text of an abstract or annotation for most of the citations. This constitutes far more information than can be carried on-line. The /ABSTRACT command provides a means of retrieving all the information contained on the original data tapes. The full form of the /ABSTRACT command is:

:/ABSTRACT n/i/xx-yy/k-h

The n, i, xx-yy, and k-h specifications are the same as in the /LIST command. i, xx-yy, and k-h are optional as usual. The dropout rules are the same as in the /LIST command.

The /ABSTRACT command causes the specified list of citation numbers to be placed into a user-supplied, cataloged file for later processing by a batch run (a non-interactive run). The batch run uses this file to see which citations should be listed and retrieves the appropriate information from specially prepared tapes pertaining to the database being used. The exact nature and format of the information is peculiar to each database.

EXAMPLE 15:

:/ABSTRACT 12/ALL

WHAT IS THE NAME OF THE BATCH FILE? CITATIONFILE (input any EXEC-8 filename e.g., CITATIONFILE)
COVER PAGE INFO:
WHAT IS THE TITLE OF THE SEARCH?
EVALUATION OF EARLY READING PROGRAMS
WHAT IS THE SEARCH ID?
NUMBER 27
ENTER YOUR NAME AND ADDRESS ON THE NEXT FIVE LINES
: PHIL ABSTRACT
: DEPT. OF COMPUTER SEARCHING
: 1213 W. DAYTON STREET
: MADISON, WIS. 53706
: (carriage return, because the fifth line wasn't needed).

IS THE ABOVE INFORMATION CORRECT? YES

182 CITATIONS WERE SENT TO BE ABSTRACTED

:

At this point we can enter any legal ACTION mode statement and proceed. Any subsequent ABSTRACTing to CITATIONFILE will cause additional information to be added to it. Preexisting information is preserved. Therefore, many different people may ABSTRACT into the same file for processing by one batch run.

The commands (punched cards) required to process a batch run for abstracts in CITATIONFILE are:

```
@RUN,/R RUNID,PROJ #,USER #,DOLLAR LIMIT,PAGE LIMIT
@ADD,P NEW*WISE.ABSTRACT
@ADD,P CITATIONFILE.
@FIN
```

When this run is finished, it is up to the user to erase or delete CITATIONFILE as he sees fit. It is recommended that the user leave CITATIONFILE intact until he is sure that the batch run did not encounter any errors.

/INFO

The /INFO command causes certain information relevant to the database in use to be listed on the terminal. Typical information would be:

Database name
Range of citation numbers currently in the database
List of special functions defined for this database

/HELP

The /HELP command causes the system to go into a conversational mode wherein the user can get information about how to use SEARCH. Once in HELP mode, the user may input the words, EXPLAIN, NEWS, BOOLEAN, or any of the ACTION mode command words.

EXAMPLE 16:

:/HELP

HELP MODE - FOR A LIST OF TERMS ON WHICH "HELP" IS AVAILABLE, TYPE - EXPLAIN

::

In HELP mode double colons are used as prompt characters to solicit the next input from the user.

::EXPLAIN

(A list of term which are legal to input while in HELP mode is produced)

::BOOLEAN

(A brief description of Boolean expressions is produced.)
::(Any action mode command word)
(A description of that command is produced)
::(Carriage return) (puts us back into ACTION mode)

ACTION:

:

In general, the explanatory text for each term on which "HELP" is available, is broken up into several sections. The first section will give a fairly brief explanation of the term. The second section, if present, will go into more detail. Each succeeding section will get more and more detailed until the last section is reached.

Here is how you access these sections:

::ABSTRACT (we want help on the ABSTRACT Command)

(explanatory text, section 1)

MORE INFORMATION? YES (Permissible answers are YES,Y, or something else)

(explanatory text, section 2)

etc.

If you keep answering YES, you will eventually get to the last section. After this has been printed, the system will say:

NO MORE INFORMATION ON THIS SUBJECT.

::

There is no limit on how many sections the text for any term may have. There is likewise no limit on how large any section may be.

/QUIT

The /QUIT command terminates the SEARCH program. Any other EXEC-8 command (one that starts with @) e.g., @FIN,E, will also terminate SEARCH.

When SEARCH terminates normally, it prints the message:

END SEARCH.

If you do not get this message, SEARCH did not terminate normally.

References

1 EDIT Reference Manual for the 1110.

2 MACC COMPUTING HANDBOOK; section concerning @CAT in the blue pages.

3 MACC COMPUTING HANDBOOK; section concerning @SAVE in the blue pages.

4 MACC COMPUTING HANDBOOK; section 3.2.

APPENDIX A

Summary of the full forms of the command statements

/LIST	n/i/xx-yy/l-h
/L	i
/PRELIST	n/xx-yy/l-h
/LISTP	x/x/x/y
/COMMENT	
/SAVE	n/p/q*f.
/ADD	p/q*f.
/RESTART	
/ABSTRACT	n/i/xx-yy/l-h
/INFO	
/HELP	
/QUIT	

APPENDIX B

Databases currently supported by MACC under the WISE system.

RIE (Resources in Education)

CIJE (Current Index to Journals in Education)

Both compiled by the Educational Resources Information Center (ERIC).

APPENDIX C

Databases other than those supported by MACC may be created and manipulated with the WISE system. A description of how to use the entire system is found in the MACC document:

WISE
Building an Online Database

APPENDIX D

Stopping unwanted output on your terminal.

If you accidentally start producing too much output on your terminal you can stop it in the following way.

1) Depress the "BREAK" key on your terminal. The computer will respond with the message: OUTPUT INTERRUPT.

2) Enter: @@X O (alphabetic O) After a possibly long pause, the terminal will print one or two more lines and then stop. If it does not stop, repeat steps 1) and 2).

3) Enter: /COMMENT
   The terminal will respond with the prompt character :
   Your problem is solved.

WISE

search program

Reference Manual for the 1110

January, 1976

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